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EXAMINER

PHILLIPS, FORREST M

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Drawings

The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

Application has been examined in light of figures present in WO priority document.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the slightly larger outlet of the second muffler must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

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consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 12-13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE19743446 (to BMW hereinafter '446) in view of Worner (US6938729).

With respect to claim 1 '446 discloses an exhaust system for an internal combustion engine (see figure 1) comprising:

A first exhaust train starting from a first cylinder bank (associated with element 6 in figure 1) including a flow permeable first muffler (3) in particular a rear muffler and

At least one second exhaust train (associated with element 5) parallel thereto starting from a separate set of cylinders and including a flow permeable second muffler (2) in particular a rear muffler, wherein the first muffler and the second muffler have a

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mutually deviating structure (that is the mufflers flow through different paths and deviate from one another in terms of the flow and exits); and

wherein the first and second exhaust trains are guided over the whole length with at most one cross-over position (within element 4' in figure 3), the first muffler comprises an inlet pipe (6) and an outlet pipe (13) with the outlet pipe, and the second muffler (2) comprises an inlet pipe (5) and an outlet pipe (11) ;

the outlet pipe of the first muffler has a comparatively small length with respect to the outlet pipe of the second muffler; and the outlet pipe of the second muffler has a comparatively large length with respect to the outlet pipe of the first muffler (see figure 3).

'446 does not disclose first and second cylinder banks, but rather is applied to an inline engine.

Worner discloses an exhaust system for a two cylinder banked engine (shown is a V-6, but is applicable to a V-8, V-10, V-12 or any other two cylinder banked engine system) having a cross over point (within element 8 in figure 1) and having two rear mufflers thereafter (3 and 4 in figure 1), which are divergent in position.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the internal characteristics of the mufflers of '446 with the V type engine and exhaust system as taught by Worner, to have the exhaust flow and sound gains applicable to any engine, inline or V type configuration.

With respect to claim 2 while '446 does not disclose expressly that the outlet pipe of the second muffler has at least approximately twice the length of the outlet pipe of the

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first muffler, however it can be seen that outlet pipe (11) has a considerably longer length than outlet pipe (13) it would have been obvious to one of ordinary skill in the art to select a length of approximately twice as long, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

With respect to claim 3 '446 discloses the invention as claimed except wherein the outlet pipe of the second muffler has an at least slightly larger diameter than the outlet pipe of the first muffler, one of ordinary skill in the art would have provided a larger diameter outlet in order to reduce the back pressure associated with the longer length of travel in the second muffler.

With respect to claim 12 Worner further discloses a muffler system wherein the cross over point does not provide significant gas exchange between the exhaust trains (when valves 12 and 13 are both in the open position).

With respect to claim 13 Worner further discloses wherein the at most one cross-over position comprises a common middle muffler (8, see column 3 lines 50-55, element 8 described as a third muffler).

With respect to claim 15 Worner is concerned with V type engines, which not expressly showing a V8, the teachings are applicable. While not expressly teachings wherein the ratio of the lengths of the outlet pipes maintain audible perception of oscillations of odd orders of a V8 engine, it would have been obvious to one of ordinary skill in the art to tune the exhaust system to provide whatever audible characteristics were desired from the system. In re Aller, 105 USPQ 233.

2. Claims 4-6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE19743446 in view of Worner (US6938729) in further view of EP0682172 (hereinafter '172).

With respect to claim 4 '446 discloses the invention as claimed except wherein the first muffler has an interior structure divided into three part spaces by means of two metal separating sheets, with the first metal separating sheet being perforated and the second metal separating sheet being intact.

'172 discloses a muffler (see figure 5) wherein the muffler has an inner structure divided into three part spaces (9,10 and 11 in figure 5) by means of two metal separating sheets (8a and 8b in figure 5) with the first separating sheet being perforated (see figure 4) and the second metal separating sheet being intact (refer to claim 6 discloses wherein at least one of the sheets is perforate, implicitly disclosing wherein one is not).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of '172 to have a muffler so structured with the mufflers of DE '446 to provide an exhaust silencer of improved sound reduction.

With respect to claim 5 '172 further discloses wherein the input pipe opens into the first space at the inlet side (refer to figure 5, openings in inlet pipe are present in the first space 9).

With respect to claim 6 '172 further discloses wherein the outlet pipe (7 in figure 5) leads starting from the first part space (9) on the inlet side through the second part space (10) and the third part space (11) with the outlet pipe (7 in figure 5) being able to

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be acted on by the flow both from the first part space (open to space 9) and from the first part space through the second part space (refer to openings 13).

With respect to claim 8 '172 discloses wherein a muffler has an inner structure divided into three spaces (9-11 in figure 5) by means of two metal separating sheets (8a and 8b) with the first separating sheet being intact and the second metal separating sheet being perforated (as '172 discloses that at least one of the plates is to be perforated it would have been obvious to one of ordinary skill in the art to apply this teaching with either plate 8a, plate 8b or to both plates 8a and 8b, perforate sheet taught by figure 4, perforations 17).

With respect to claim 9 '172 further discloses wherein the inlet pipe extends through the first space and through the second space at the inlet side and opens into the third space (as seen in figure 5 the pipe 6 opens into space 11 as well as space 10).

3. Claims 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19743446 in view of Worner (US6938729), EP0682172 and further in view of Uegane (US20010018995).

With respect to claim 7 '446 as modified discloses the invention as claimed except further comprising a resonator extending through the second part space and into the third part space adjoins the inlet pipe.

Uegane disclose a resonator (elements 34 and 32 in figure 2) which extend into a second and third part space (29 and 30 in figure 2) and adjoin the inlet pipe (14 in figure 2).

With respect to claim 11 Uegane further discloses a resonator (35 in figure 2) which connects the third part space (29) to the first part space(31 in figure 2).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Uegane to provide a resonator connecting the part spaces of the muffler of '446 as modified to further reduce unwanted noise in a minimum of volume.

With respect to claim 14 the resonator as taught by Uegane (elements 34 and 32) which extend into second and third spaces, extend from an exit of the first inlet pipe, in as much as the resonators are the openings, and therefore exist of the first inlet pipe.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19743446 in view of Worner (US6938729), EP0682172 and further in view of Nilsson et al (US20010045322).

With respect to claim 10 '446 as modified discloses the invention as claimed except wherein the outlet pipe leads through the second part space into the first part space on the inlet side, starting from the third part space and back through the second part space and the third part space in an arcuate curve with the outlet pipe being able to be acted on by flow at the inlet side both from the third part space and from the third part space through the second part space.

Nilsson discloses an outlet pipe of a muffler (7 in figure 1) leads through a second part space into a first part space on the inlet side, starting from a third part space and back through the second part space and the third part space in an arcuate curve with the outlet pipe being able to be acted on by flow at the inlet side both from

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the third part space and from the third part space through the second part space (refer to figure 1, partitions shown but unnumbered in figure 1).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Nilsson to route the exhaust outlet pipe through the part spaces as claimed with the muffler of '446 as modified to provide a muffler in which "predetermined requirements for comfort directed low-frequency suppression of the exhaust flow noise as well as statutory requirements for high frequency absorption of the noise are fulfilled" (see abstract).

Response to Arguments

Applicant's arguments filed 8/24/09 have been fully considered but they are not persuasive. Arguments concerning claims 1 and depending are moot due to new grounds of rejection.

Specifically addressing applicant's arguments concerning claims 8 and 9, and the perforate and intact plate teachings.

The '172 reference teaches both wherein plate 8a is intact (see figure 6) and also wherein plate 8a is perforate (see figure 4).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FORREST M. PHILLIPS whose telephone number is (571)272-9020. The examiner can normally be reached on Monday through Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on 57127221990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F. M. P./
Examiner, Art Unit 2832

/Jeffrey Donels/
Primary Examiner, Art Unit 2832